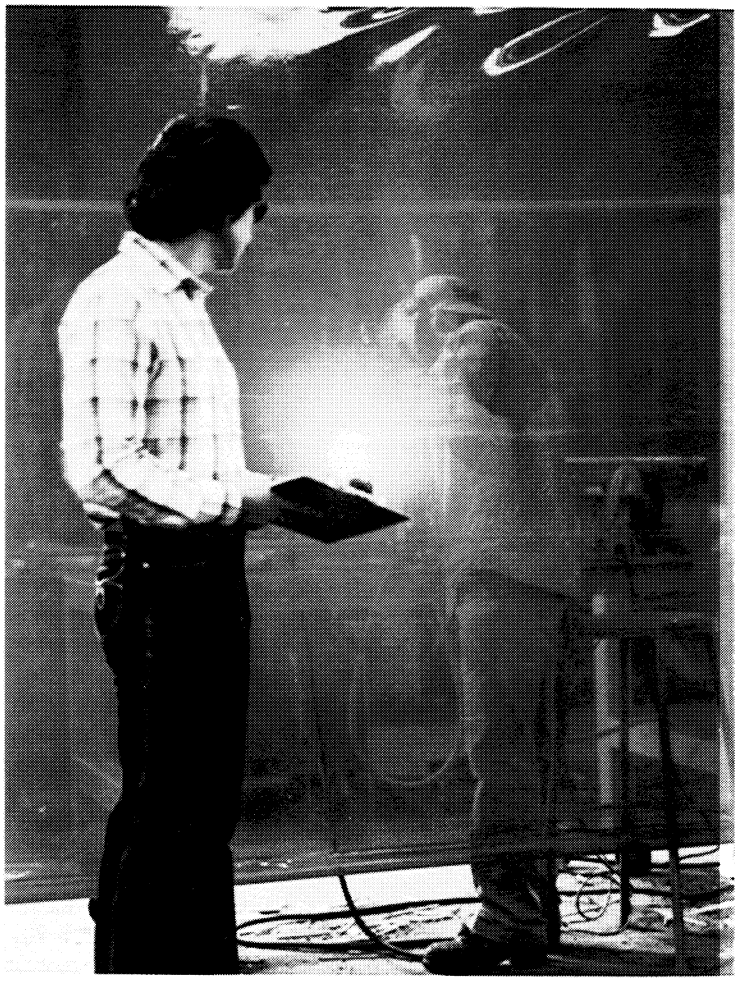
Welding Curtains

Electric arc welding emits brilliant light that can cause eye irritation or retinal damage if the observer stares at the light for an extended period. The potential for eye damage varies with the type of welding process employed, the strength of the electric current and other factors. There is greater danger from light emitted in certain wavelengths, in particular invisible ultraviolet radiation and a hazardous "blue light" that occurs at certain wavelengths in the visible portion of the light spectrum.

The welder is protected by a helmet with dark glass filter plates that enable continuous viewing of the welding arc without harm. But there was a need in industrial operations for a means of protecting bystanders, supervisors who observe progress of a welding job or safety inspectors who check for accident causing procedures. In 1968, David F. Wilson, president of Wilson Sales Company, Rosemead, California, originated the concept of the transparent welding curtain made of heavy duty vinyl. Marketed in several versions, Wilson curtains reduced the glare of the welding arc and blocked the far ultraviolet radiation. When later research uncovered the blue light hazard, Wilson sought to improve his product line.

He contacted the late Dr. Charles G. Miller and James B. Stephens, both of Jet Propulsion Laboratory, and they agreed to undertake development of a curtain capable of filtering out harmful irradiance—including both ultraviolet and blue light—and providing protection over a broad range of welding operations. Miller, a nuclear physicist specializing in the interaction of photons with materials, brought to the undertaking his considerable knowledge of hazardous radiations and ways of reducing the hazard. Stephens, a systems engineer, applied problem-solving methodology based on his JPL experience.

Working on their own time, the JPL pair spent three years developing a patented formula that includes light filtering dyes and small particles of zinc oxide. The result was the Wilson Spectra™ Curtain pictured, now being marketed commercially. The curtain absorbs, filters and scatters light to provide a better working environment for welders, their co-workers and supervisors. It meets the design goal of filtering out ultraviolet and blue light, has good visibility, reduces arc glare better than any of Wilson's other transparent curtains, and, in addition, a fluorescent characteristic of the dye formula puts light back into the welding booth, a boon to the welder. Spectra Curtain transmits less than seven-thousandths of the glare-producing effects that the company's conventional yellow curtain transmits and returns four times as much useful light to the welding booth. The work of Miller and Stephens on this project led to another light-filtering development, sunglasses that protect against ultraviolet, blue and other radiations.



™Spectra Curtain is a trademark of Wilson Sales Company.